AMENDMENTS TO THE TITLE

Please amend the title of the invention as follows:

~~MAGNETIC RECORDING MEDIUM, MANUFACTURING METHOD AND MANUFACTURING EQUIPMENT THEREFOR, METHOD FOR REPRODUCING RECORD OF MAGNETIC RECORDING MEDIUM AND RECORD REPRODUCING EQUIPMENT~~

<u>MAGNETIC RECORDING MEDIUM, AND MANUFACTURING METHOD AND MANUFACTURING APPARATUS OF THE SAME, RECORDING AND REPRODUCTION METHOD OF MAGNETIC RECORDING MEDIUM, AND RECORDING AND REPRODUCTION APPARATUS OF THE SAME</u>

AMENDMENTS TO THE SPECIFICATION

Please replace the paragraph at page 4, line 29, with the following rewritten paragraph:

In addition, a dielectric layer is preferably provided between the recording film and the metal layer. Also, a dielectric layer is preferably provided between the disk substrate and the metal layer. The metal layer or the dielectric layer has an etched surface. In such a case, at least the metal layer or the dielectric layer preferably has a surface roughness Ra of at least ~~0.5~~ 0.5 nm.

Please replace the paragraph at page 18, line 11, with the following rewritten paragraph:

The above effects are even more pronounced if the lubricating layer here is made up of a plurality of thin films. Specifically, with the magnetic disk 30 of this embodiment, during DLC film formation, a lubricating layer is formed with the amount of H_2 set to 3% versus the argon, after which a lubricating layer is formed with the amount of H_2 set at 0.5%, and then a ~~PFRE~~ PFPE lubricating layer is formed by coating. Thus employing a plurality of lubricating layers further enhances the heat blocking effect between the recording layer and the lubricating layer composed of PEPE on the surface, and suppresses an increase in the temperature of the second lubricating layer. As a result, it is possible to obtain a magnetic recording medium with excellent signal characteristics and heat resistance even during the recording and reproduction of signals with a magnetic head such as a GMR head when the temperature of the recording film rises under laser beam irradiation.

Please replace the paragraph at page 23, line 27, with the following rewritten paragraph:

With the vacuum evacuation still in progress, argon gas is introduced into the chamber up to a pressure of 1.5 Pa, and the substrate is rotated while a recording layer is formed by DC magnetron sputtering in a thickness of 80 nm over the heat-resistant layer 53, using a ~~TbFeCo~~ TbFeCoCr alloy target. The chromium film composition of the

~~TbFeCo~~ TbFeCoCr here can be matched to the desired film composition by adjusting the alloy target compositional ratio. Next, using a TbDyFeCoCr alloy target, an intermediate layer composed of TbDyFeCoCr is formed by DC magnetron sputtering in a thickness of 15 nm. Then, using a GdFeCoCr alloy target, a reproduction layer composed of GdFeCoCr is formed by DC magnetron sputtering in a thickness of 35 nm. A recording film 54 with a three-layer structure comprising a recording layer, intermediate layer, and reproduction layer can be formed by the above method.

Please replace the paragraph at page 26, line 9, with the following rewritten paragraph:

First, an AlCr target is installed in a DC magnetron sputtering apparatus, and the disk substrate is fixed in a substrate holder, after which the inside of the chamber is vacuum evacuated with a turbo molecular pump to a high vacuum of 8×10^{-6} Pa or less. With this vacuum evacuation in progress, argon gas and a minute amount of N_2 gas are introduced into the chamber up to 0.3 Pa, and the substrate is rotated while a heat-radiating layer ~~52~~62 composed of a metal material (AlCr) is formed in a thickness of 50 nm over the disk substrate 61.

Please replace the paragraph at page 31, line 13, with the following rewritten paragraph:

The disk substrates in the embodiments given above were described as having a configuration in which guide grooves or prepits were formed, as was a fine pattern using a photopolymer, in a polycarbonate, metal, or glass substrate. There are no particular restrictions on the material of the disk substrate, however, as long as it satisfies the mechanical properties and other such characteristics required of a medium substrate, and can be glass, polycarbonate, polyolefin, epoxy resin, another plastic material, or the like. A fine pattern may be formed directly on these. Furthermore, the disk substrate may be a metal substrate, or a combination of a glass substrate and a plastic material. When glass is used, the substrate can be manufactured ~~by 2P method~~ by 2P (Photo-Polymer) method using a UV-setting resin. The fine pattern formed from a photopolymer on the glass substrate was described above as a circular pattern of 0.3 μm, but may be a pattern of 0.5

μm or less, or may consist of bumps smaller than the smallest recorded magnetic domains, or bumps that are hemispherical, square, or some other shape, and as long as the fine shape is uniform and does not lead to signal noise from the recorded magnetic domains, there will be the same effect of stabilizing the tiny magnetic domains of the recording layer.